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Amendments to the Claims

The following listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) An apparatus comprising:
at least one suspended beam wherein the beam encases encloses one or more sealed microfluidic channels, and wherein each microfluidic channel has at least one inner surface that is treated to bind to or react with at least one analyte; and wherein the beam is a resonating beam and the device measures changes in resonance frequency of the beam.
2. (Previously Presented) The apparatus of Claim 1, wherein the microfluidic channel surface is treated with a capture ligand that binds to the analyte.
3. (Previously Presented) The apparatus of Claim 1, further comprising a device for measuring a change in a mechanical property of the beam.
4. (Previously Presented) The apparatus of Claim 2, wherein the capture ligand is bound to the interior surface of the microfluidic channel.
5. (Previously Presented) The apparatus of Claim 2, further comprising a gel in the microfluidic channel, wherein the capture ligand is bound to the gel.
6. (Original) The apparatus of Claim 5, wherein the beam has two microfluidic channels that meet in a region containing a polymerized gel then separate downstream from the gel.
7. (Previously Presented) The apparatus of Claim 6, wherein the analyte is transportable into the gel via pressure from the fluid flow.
8. (Cancelled).
9. (Previously Presented) The apparatus of Claim 163, wherein the resonance of each beam is driven by a pair of drive electrodes.

10. (Original) The apparatus of Claim 9, wherein one of the electrodes of the electrode pair is common to all the beams and the other electrode of the electrode pair is separately addressable for each beam.
11. (Original) The apparatus of Claim 10, wherein the electrodes are a metal that is, independently, selected from the group consisting of gold, nickel, platinum, aluminum, copper, antimony, tin, indium, chromium, titanium, and alloys thereof.
12. (Original) The apparatus of Claim 11, wherein the electrodes are gold.
13. (Original) The apparatus of Claim 10, wherein the common electrode is in contact with the each beam.
14. (Previously Presented) The apparatus of Claim 10, wherein the common electrode is an electrolyte solution in the microfluidic channel.
15. (Previously Presented) The apparatus of Claim 3, wherein the device for measuring a change in the mechanical property of the beam is one or more capacitors.
16. (Previously Presented) The apparatus of Claim 9, wherein the drive electrodes are also used to measure a change in the mechanical property of the beam.
17. (Previously Presented) The apparatus of Claim 15, wherein the one or more capacitors are in contact with a surface of the beam.
18. (Cancelled).
19. (Previously Presented) The apparatus of Claim 2, wherein the capture ligand is a nucleic acid.
20. (Original) The apparatus of Claim 19, wherein the capture ligand is a single stranded DNA.
21. (Original) The apparatus of Claim 19, wherein the capture ligand is double stranded DNA.

22.-27. (Cancelled).

28. (Previously Presented) The apparatus of Claim 3, wherein the device measures the conductivity of the microfluidic channel.

29.- 42. (Cancelled).

43. (Previously Presented) The apparatus of Claim 1, wherein the one or more microfluidic channels has a depth in the range of between about 100 nm and about 3000 nm.

44. (Previously Presented) The apparatus of Claim 43, wherein the one or more microfluidic channels have at least one wall with a thickness in the range of between about 100 nm and 1200 nm.

45. (Cancelled).

46. (Original) The apparatus of Claim 1, wherein the beam is suspended in a low pressure environment.

47.-161. (Cancelled).

162. (Previously Presented) The apparatus of Claim 1, wherein the beam is in a controlled environment.

163. (Cancelled).

164. (Previously Presented) The apparatus of Claim 1, wherein the beam is a cantilever beam.

165. (Previously Presented) The apparatus of Claim 1, wherein the beam is suspended between two mechanically stable supports.